

What is claimed is:

1. A control system employed for an internal combustion engine and provided with a thermal type air flow sensor output correcting means;

wherein said thermal type air flow sensor output correcting means includes:

a surge time measuring means for measuring a surge time in a value detected by said thermal type air flow sensor when said thermal type air flow sensor is powered; and

a supply voltage detecting means;

wherein said output correcting means calculates a warming-up characteristic correction amount for said thermal type air flow sensor according to said measured surge time and said detected supply voltage.

2. A control system employed for an internal combustion engine and provided with a thermal type air flow sensor output correcting means;

wherein said thermal type air flow sensor output correcting means includes:

a surge time measuring means for measuring a surge time in a value detected by said thermal type air flow sensor when said thermal type air flow sensor is powered; and

a supply voltage detecting means;

wherein said output correcting means estimates an initial temperature of an element of said thermal type air

flow sensor according to said measured surge time and said detected supply voltage to calculate a warming-up characteristic correction amount for said thermal type air flow sensor from said estimated temperature.

3. The control system according to claim 1 or 2;

wherein said thermal type air flow sensor output correcting means further includes a correcting means for correcting said measured surge time according to a supply voltage during a surge time measurement.

4. The control system according to claim 1 or 2;

wherein said control system calculates a warming-up characteristic correction amount for said thermal type air flow sensor by calculating a squared average value of values obtained respectively by subtracting a predetermined value 1 from said supply voltage during a surge time measurement when said air flow sensor is actuated, then correcting said supply voltage according to said squared average value.

5. The control system according to claim 1 or 2;

wherein said control system calculates a squared average value of values obtained respectively by subtracting a predetermined value 1 from said supply voltage during a surge time measurement, estimates a surge time in the normal condition according to said squared average value, and calculates a warming-up characteristic

correction amount for said thermal type air flow sensor from said estimated surge time.

6. The control system according to claim 1 or 2;
wherein said control system uses a predetermined value 2 as a supply voltage during a reset operation and a total of said measured value and a predetermined value 3 as a surge time for calculating a squared average value of values obtained respectively by subtracting a predetermined value 1 from said supply voltage during a surge time measurement.

7. The control system according to claim 6;
wherein said predetermined value 3 is a total of a standard hardware resetting time of an ECU and a software resetting time.

8. The control system according to claim 6;
wherein said predetermined value 2 is a supply voltage stored in a memory unit provided in said ECU when said ignition switch is on and a engine isn't driven.

9. The control system according to claim 6;
wherein said predetermined value 2 is obtained just after said ECU is powered.

10. The control system according to any of claims 1 to 9;

wherein warming characteristic correction isn't acted for said thermal type air flow sensor when no surge

voltage is detected from said thermal type air flow sensor actuated just after said ECU is powered.

11. The control system according to claim 1 or 2;
wherein said control system further includes:

intake air flow detecting means other than said thermal type air flow sensor;

determining means for determining whether or not a value detected in said intake air flow detecting means is equal to or smaller than a predetermined value; and

correcting means for correcting said warming-up characteristic correction amount for said thermal type air flow sensor;

wherein said correcting means makes warming-up characteristic correction only when said determining means determines that an intake air flow is equal to or smaller than said predetermined value.

12. The control system according to claim 1, 2, or 11;
wherein said intake air flow detecting means other than said thermal type air flow sensor uses at least one of throttle opening, accelerator opening, and engine speed.